## CLAIMS

1. A propulsion system for an electric powered flying wing toy, comprising:

an electric motor powered pusher propeller;

a minimal profile motor enclosure that form-fits to the shape of the electric motor in order to maximize the cross section of smooth air presentable to the propeller; and

a smooth, streamlined, featureless top surface between the flying wing nose and pusher propeller having the effect of minimizing obstruction of air upwind of the propeller and maximizing smooth laminar air flow over the wing body; said smooth wing airflow being further improved owing to the effect of partial vacuum between the propeller and the nose when the pusher propeller is engaged.

2. The system as set forth in claim 1 wherein the propeller is extended a sufficient distance aft of wing trailing edge, in order to effectively decouple propeller-induced air turbulence between the propeller and the wing trailing edge, with the effect of increasing propeller efficiency, reducing audible propeller noise, and reducing mechanical propeller vibration and stress for the intended flight performance envelope.

3. The system as set forth in claim 2 wherein aft propeller extension is deployed by extending the minimal profile motor fuselage and motor assembly aft of the trailing edge.

4. The system as set forth in claim 2 wherein aft propeller extension is deployed by extending the propeller shaft length.

5. A system for securing a battery module within an electric powered swept flying wing toy, comprising:

a battery bay cutout underneath the flying wing body and embedded completely inside the wing body, specifically positioned underneath instead of topside, in order to allow a featureless top surface, for the purpose of minimizing interruption of smooth laminar air flow on the top surface;

a Velcro fastener that is attached to the surface of a battery module that will be exposed and visible when the battery is properly installed into the battery bay;

the battery module, when installed in the battery bay, is prevented from falling out of the battery bay through the use of two or more straps placed perpendicular to the wing chord, with spacing in between the straps to later accommodate one or more mating Velcro fastener(s);

one edge of a thin, resilient, flexible battery bay cover flap is permanently attached to the underside of the wing body between the nose and the battery bay, and is properly dimensioned and positioned to cover the battery bay opening;

the battery bay cover flap incorporates one or more Velcro fasteners attached to its inside surface, dimensioned and positioned in order to mate against the exposed portions of the battery module Velcro fastener stripe when the flap swings to cover the battery bay opening;

a Velcro fastener is attached to the battery flap, near the opposite, unsecured edge of the battery bay flap, which in turn mates to a corresponding Velcro fastener fixed to the bottom wing surface between the wing trailing edge and the battery bay;

with the battery module installed, the battery bay cover flap is lightly stretched as it is lowered to the bottom wing surface, securing itself to the mating Velcro on the battery module as well as on the bottom wing surface;

battery module is hence locked in place so it cannot slide laterally within the battery bay, and the battery bay straps instead of the Velcro will primarily absorb the principal forces acting on the battery in flight and during impact; and

battery removal is accomplished by peeling the battery bay cover flap away from the mating Velcro.

6. The system as set forth in claim 5 wherein the plan form view wing sweep amount is chosen to allow the battery module to be installed aft of wing nose with sufficient spacing between nose and battery to offer battery impact absorption, while maintaining an aircraft balance point that allows the aircraft to fly in a stable attitude.

7. The system as set forth in claim 5 wherein the battery module position is adjustable within the battery bay, toward the front or rear of the aircraft, for fine-tuning aircraft balance or accommodating balance point shifts due to wing span shortening or other aircraft modifications.

8. The system as set forth in claim 5 wherein a resilient foam stop block is inserted into the battery bay before the battery is inserted, in order to fill any air cavity that may be present with the battery having been repositioned to set the optimal aircraft balance point.

9. The system as set forth in claim 5 wherein the width of the battery bay cover flap is made slightly narrower than the battery bay width, to allow for air flow into battery bay to cool the battery module, electronics and motor.

10. The system as set forth in claim 5 wherein resilient battery bay strap materials are used in order to absorb shock incurred upon hard impact.

11. The system as set forth in claim 9 wherein the resilient material used is filament tape, with contact adhesive spray has been previously applied to

surfaces where filament tape is to be applied, for maximum filament tape adhesion strength.

12. A flying wing for use with an electric propulsion system, comprising:

an airfoil having a leading edge, a trailing edge, and top and bottom surfaces defining an interior;

a battery bay formed within the interior and adapted to completely enclose a battery therein; and

a motor enclosure formed to extend from the trailing edge of the airfoil and adapted to enclose an electric motor.

13. The flying wing of claim 12 wherein the leading edge of the airfoil is swept back towards the trailing edge at an angle to form a nose portion and to enable installation of a battery in the battery bay aft of a nose portion of the airfoil with shock-absorbing material between the battery and the nose portion of the airfoil while maintaining a balance point that enables the airfoil to achieve sustained flight.

14. The flying wing of claim 12 wherein the motor enclosure is adapted to extend aft of the trailing edge a predetermined distance that decouples airfoil trailing edge air turbulence from an aft-mounted propeller.

15. An aerodynamic wing-shaped propelled vehicle, comprising:

an airfoil having top and bottom surfaces that meet at a leading edge and a trailing edge, the leading edge swept back towards the trailing edge to form a nose portion, the airfoil configured to have an arched cross-sectional configuration that provides camber and that defines an interior;

a battery bay formed in the interior of the airfoil and configured to entirely enclose a battery within the interior of the airfoil;

an electric motor coupled to the battery and having a shaft extending therefrom on which is mounted a pusher-type propeller; and

a motor mount integrally formed on the airfoil and sized and shaped to receive the electric motor, the motor mount extending aft of the trailing edge of the wing a predetermined distance to position the propeller away from turbulence generated at the trailing edge of the airfoil when in flight.

16. The vehicle of claim 15, comprising a battery module sized and shaped to be received within the battery bay, the battery module comprising a battery and means for retaining the battery inside the battery bay.

17. The vehicle of claim 16, comprising a flap for covering the battery bay without interfering with the aerodynamics of the airfoil.

18. A flying wing toy, comprising:

a wing having a leading edge and a trailing edge; and

a propulsion system mounted on the wing having a pusher propeller extending aft of the trailing edge of the wing a sufficient distance to decouple the propeller aerodynamically from turbulence generated at the trailing edge of the wing when in flight.

19. The toy of claim 18 wherein the propulsion system comprises an electric motor powered by a battery mounted inside the wing.

20. The toy of claim 19, further comprising a battery bay formed inside the wing and having an access opening on an underside of the wing.